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AUTHOR Madachy, James L.; Miller, J. Douglas
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ABSTRACT

The creation and use of CAI and videotapes as methods for improving the English language skills of the hearing impaired during the past three and one half years at Gallaudet College are described. The first part of the paper discusses CAI as a working system within a total English language program; the second part discusses efforts to integrate CAI with videotapes as a means of increasing the effectiveness of English language instruction. Although some testing of these materials has been completed, the relationship between student exposure to these materials and overall improvement in English language skills needs to be researched and documented. (Author/VT)

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THE ROLE OF CAI AND VIDEO TAPES AS INSTRUCTIONAL SUPPLEMENTS TO AN ENGLISH LANGUAGE PROGRAM FOR THE HEARING IMPAIRED

by

James L. Madachy

J. Douglas Miller

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THE ROLE OF CAI AND VIDEO TAPES AS INSTRUCTIONAL SUPPLEMENTS TO AN ENGLISH LANGUAGE PROGRAM FOR THE HEARING IMPAIRED

By: James L. Madachy and
J. Douglas Miller

The information included in this paper represents our experience during the past three and one half years in creating and using CAI and video tapes as methods for improving the English language skills of the hearing impaired. The paper divides into 2 main parts: the first part discusses CAI as a working system within a total English language program. The second part discusses efforts to integrate CAI with video tapes as a means of increasing the effectiveness of English language instruction for hearing-impaired students.

We have presented information about Gallaudet's Language CAI system elsewhere; however, a bit of background is perhaps necessary before we discuss our newest developments. Gallaudet has a DEC 1040 computer which is linked to the English department's 10 CRT terminals. We have an interactive system of 200 lessons based on an English-as-a-Second-Language format. Our system has been in use for two and one-half years now by approximately 350 students each semester. The lessons have proven to be very effective in savings of teacher time and in student advances in knowledge of English structure. Our core structured lessons proceed from the "to be" verb to complex clausal relationships, but we have added several supplementary areas which we are very excited about in terms of a total English language program.

Our first priority was to randomize our core lessons. We completed this with the assistance of Kevin Casey, the director of our computer division, who rewrote our user's program so that the computer could generate a randomized version of each lesson as it is presented to the student. Each lesson now has three to five examples of each task so that no two students get the same lesson. For example, if we had a lesson which had 30 drill and practice tasks to be performed, we added four more examples of each specific task so that now the computer choses among 150 examples but still presents only 30 to the student. Our lessons are set up in such a way that each task is considered a unit; the random selection is one out of the four or five included in that unit instead of selecting any 30 tasks from a base of 150. In this way we are able to make sure that each specific lesson is comparable to any other randomized unit of the same number. The level of difficulty and the skill involved are maintained regardless of which tasks are selected for any one lesson.

Because of the randomized factor in the lessons, now a student can repeat a lesson numerous times without becoming bored by seeing the same examples and without subconsciously memorizing the correct answers. We originally used CRT's to prevent cheating by students who would possibly give a hard copy of the correct answers to a friend. Now, we can permit the use of hard copy

terminals with the concomitant advantage of the student's being able to retain a copy of the lesson for subsequent study. Each of the lessons still has a pre-test, explanations, examples, and hints leading toward a correct response. Only the individual tasks are randomized.

Because we feel that CAI can be used for more than just structural drill and practice, we have begun work in other language areas. It is obvious that simply using CAI consists of constant reading practice; however, we decided to try a more formalized type of reading instruction through CAI. We based our lessons on six general reading skills (reading for sequencing, detail, main idea, inference, contextual clues, and drawing conclusions). Each lesson consists of 20 short paragraphs after which a question is asked. Because we have limited the possible responses to four, we were able to respond specifically to all possible erroneous responses, thus leading the student toward the correct response rather than simply providing the right answer.

We designed the paragraphs and the hints in such a way that if a student makes a mistake, we were able to indicate what part of the paragraph or what word the student has most likely not focused in on. For example, we can tell the student to re-read a given sentence if the answer is embedded in that sentence, or we can define a word if that word is the key to a proper response. To prevent boredom, we vary the skill involved in reading each paragraph, but we did emphasize one skill in each lesson by having ten of the twenty paragraphs focus on one specific skill. We decided to use skill-based reading work because we feel that our students must work in a step-by-step building process in reading just as they do in structure work. If a student can learn how to read for detail, then move to sequencing and reading for the main idea, then we can move him to the most difficult areas of reading for inference and drawing conclusions. We must first make sure he is understanding the facts and vocabulary of what he reads before we demand that he use the additional cognitive processes required in drawing conclusions.

The teaching of reading is a skill that so few people understand that we are content for now to give hints about how to read and to draw the student from simple to more complex skills. We feel that the key to valid CAI reading practice is in the careful creation of reading materials that can be controlled sufficiently to permit meaningful hints. If a passage has so many problem areas in it that we cannot tell where the student is likely to go wrong, we cannot write adequate hints. We feel that much more work in the area of reading through CAI is necessary and possible. This is a sadly neglected part of CAI materials available on the market.

Another possible area well suited to CAI is that of vocabulary development. With all areas using CAI, but especially with reading and vocabulary, we wish to emphasize that all computer work is done within the larger context of our total language program. We never put a student solely on computer work. We use supplementary materials whenever possible, and most often the computer is simply a supplementary or alternative material.

We now use several different types of vocabulary drill in our CAI package. We have designed lessons specifically with a deaf population in mind, but they can be used with any other group. We now have five lessons on prefix-suffix drill. We choose the most common prefixes and suffixes and a small number of crucial root words for our drills. We have ten lessons on the most common

idiomatic verb phrases, which we feel is an area of real need for hearing-impaired learners. In these lessons, definition for the idioms are given and the student is asked to choose the proper idiom as used in context. We chose eight lessons in which we supply definitions for words, and then the student must use the proper word in a complete sentence. We have seven lessons in which the student must also type a complete sentence, but these words are supplemented by video-tape presentations using ASL, signed English, and captions. Each word is used in four different sentences.

Our newest vocabulary lessons are short answer drills. These are best described as a combination of test and practice. We do not supply definitions, therefore, students are being tested on their past knowledge of the word, but we do permit two tries and then give the correct answer, so the student is being given practice. There are twenty-five words in each lesson, each word being presented twice. In addition to these quick answer vocabulary drills, we have created four experimental lessons in PILOT. These lessons are totally contextual. We tried to couch the vocabulary choices in sentences with sufficient clues so that the student can grasp most meanings from context. These are also quick answer drills with hints leading toward the correct response. We used PILOT instead of GNOSIS for these lessons in order to reduce the need for carriage returns and to permit a greater range of responses. PILOT is also compatable with a greater variety of computers. Included in our handouts you can see a sample of the differences in appearance between a GNOSIS and a PILOT program. The PILOT lessons have a much cleaner appearance; however, they are more time consuming to program.

As we mentioned earlier in this paper, we use CAI as a supplementary resource to the other materials in our total English language program. Video tapes are included among the English language materials we are now developing, and the integration of video tapes with CAI would seem to offer definite advantages over using either medium alone.

Despite the many benefits inherent in CAI, it has at least one limitation as a language-learning device. That is, the language-related tasks that students perform via CAI tend to become ends in themselves. Completing language-related tasks is not always synonymous with language learning in its broader application. Students using CAI do show general improvement in English language work; however, we know of students who perform admirably at the computer terminal but whose English language skills continue to be deficient in more ordinary communication situations. When exposed to controlled situations such as CAI, students can often learn to manipulate English language structures successfully. However, the same students often misuse those same structures when asked to write a letter or an essay. It would seem that such students have not internalized the concepts embedded in the English language structures they have practiced at the computer terminal.

It would seem that students could profit from using materials which would help them master both the language concept and the corresponding form or structure which communicates that concept. Using video tapes and CAI as instructional complements would seem to be of definite value in this regard. Video tapes would seem to be a natural medium for presenting and illustrating certain language concepts; CAI would seem to be an excellent device for providing drill and practice in manipulating various English language structure.

In view of this dual purpose, we have completed an experimental project in the active voice and the passive voice. We selected the passive voice because the past participle is a structure difficult for many hearing impaired students. Moreover, the idea of "doer" and "receiver" embedded in these structures seemed to be appropriate for visual presentation. The project attempts to integrate video tape instruction of these structures with CAI. In completing this learning unit, the student proceeds throught the following steps:

I. Students complete a video tape pre-test on the active and passive voice, simple past tense. If students fail the pre-test, they proceed to step II.

II. Students receive CAI drill and practice in forming the simple past tense of regular and irregular verbs.

III. Students receive CAI drill and practice in forming the active voice, simple past tense.

IV. Students receive video instruction and practice in forming the active voice, simple past tense.

V. Students receive CAI drill and practice in forming past participles of regular and irregular verbs (forming past participles correctly is necessary to forming the passive voice).

VI. Students receive CAI drill and practice in forming the passive voice, simple past tense.

VII. Students receive CAI drill and practice in transforming the active voice to passive voice and vice versa, simple past tense.

VIII. Students receive video instruction in the passive voice, simple past tense.

IX. Students complete a video tape post-test in the active and passive voice, simple past tense.[1]

Aside from the pre-test and post-test segments, students can access the computer lessons and the corresponding video tape materials without the aid of the instructor. Once given the lesson numbers, students use standard procedures to logon to the computer and they use a conventional video cassette player to access the video tapes. Students receive CAI drill and practice in using appropriate language structures before viewing the video sequences dealing with those same structures. The reason for this arrangement is that we wanted to make sure that students were familiar with the language structures before asking them to use those structures in responding on paper to video-taped scenes. The computer materials give instruction in verb formation and in active and passive constructions. The video segments offer instruction in the active and passive voice by means of sign language, captions, and short skits. Students have practice in associating the language structures with the corresponding concepts by viewing various video-taped scenes and then using either the active voice or the passive voice (whichever is indicated) to describe the

[1]These steps were mentioned at a paper given at the ADCIS convention in Santa Barbara (January, 1976); however, the project was not completed at that time.

action occurring in each scene.

This CAI/Video tape unit has been used with approximately fifty students. Students have shown a marked improvement in post-test scores compared with pre-test scores. However, other ways of testing the materials need to be used and documented. The video tape materials thus far completed deal with the active and passive forms of fairly simple verbs (both regular and irregular verbs) such as bite, eat, drink, throw, hit. New materials will introduce more sophisticated vocabulary items and will give the appropriate, idiomatic structures (either active or passive) for using these vocabulary items. Because hearing-impaired students have difficulties using participles correctly, we hope to eventually create CAI/Video tape materials which will teach verbs included in the following paradigm:

The man frightened Mary.
Mary was frightened by the man.
Mary was a frightened girl.
The man was frightening.
He was a frightening man.

The computer and video materials described in this paper represent alternative and supplementary ways to help improve the English language skills of the hearing impaired. As used at Gallaudet College, they are but a part of a total English language program. Although some testing of these materials has been completed, the relationship between student exposure to these materials and overall improvement in English language skills needs to be researched and documented.